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Prevention

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techniques de prevention de la pollution sur les  
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## INFORMATION DISSEMINATION FOR POLLUTION PREVENTION

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### INTRODUCTION

Pollution prevention for NATO and the Partners for Peace (PfP) nations within the framework of environmental security is a complex and pervasive issue. There are many facets to pollution prevention and reclamation of resources previously polluted by both military and civilian activities. NATO air, land, and sea military operations must take cognizance of these matters without unduly limiting or restricting their efficacy. And new understandings of the matter, changing natural environmental laws, and international agreements are generating a multitude of new approaches to coping with these issues.

As the NATO and PfP nations separately and jointly strive to develop processes and introduce new innovative approaches to solve these problems, there will be a large amount of experimental data that can be accumulated and shared. Much leverage may be realized with broad dissemination of the experiences of all the participating nations. The successes in one context or in one nation should be studied for applicability by others. Thus, it is most important to facilitate the timely dissemination of accurate and relevant data and analyses of each country's experiences.

Over the last three years, a project for the Committee on the Challenges of Modern Society (CCMS), the Environmental Clearing House System (ECHS), has developed a worldwide electronic data and information exchange system. The ECHS was developed with the understanding that the participants would be geographically widely separated and be serviced with widely different levels of computer capability and knowledge, and communications infrastructure. This system is a good model for methods to effectively disseminate information within the pollution prevention community.

### THE WORLD WIDE WEB

An early decision in this implementation of the ECHS was to take advantage of the World Wide Web (WWW—also the Web), which in 1995 when the decision was made was still not in very wide use. The WWW was invented at CERN, the international particle physics laboratory that straddles the Swiss-French border near Geneva, Switzerland, in 1991. Its potential to facilitate information transfer amongst a very large, diverse, and geographically dispersed community was exploited in 1993 when the Web browser, MOSAIC, was developed at the University of Illinois at Urbana-Champaign, IL.

The WWW, which is an information transport protocol supported by the Internet, has driven the use of the Internet to spectacular levels. It is estimated that the number of people connected to the Internet today is approaching 200 million (over 4% of the world population). The number of registered Websites was 130 in June 1993, about 10,000 at the beginning of 1995 and today it is about 4.5 million. See Figure 1 for a graphic of this growth. This is the "information revolution" the origins of which may be traced in modern times to the building of the early fully electronic computers after World War II, e.g., the ENIAC in 1946. It is the amalgamation of computer technology and the communications infrastructure that has made this revolution possible.

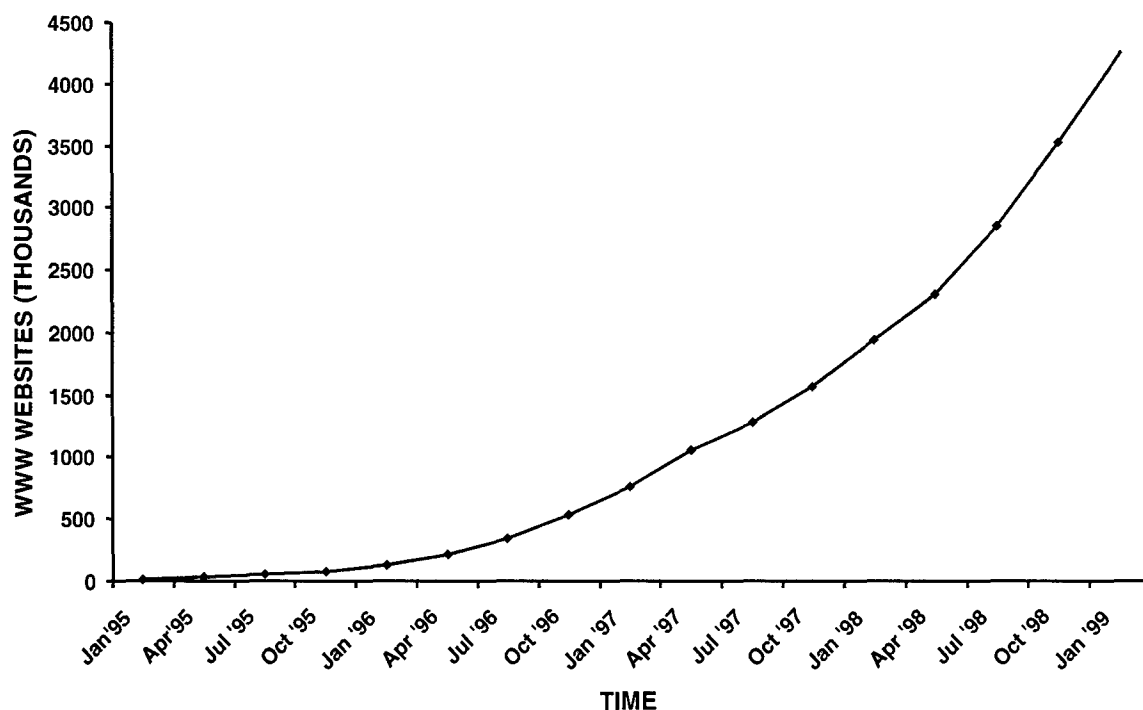


Figure 1. WWW Websites (Thousands)

#### A BRIEF HISTORY OF ECHS

In late 1994, the NATO CCMS directorate, recognizing the need for the establishment of a clearing house for environmental technical information exchange, initiated a program to develop the ECHS. The design for an experimental ECHS, based on the WWW, was done during early 1995, and by mid-1995 a test facility was up and running at IDA in Alexandria, VA, USA. The first public demonstration of the ECHS occurred in September 1995 in Swansea, UK, and a demonstration and training session for PfP representatives took place at NATO headquarters in Brussels in March 1996.

From early 1996 until early 1998 the ECHS was evolved from its early conception to a system more responsive to the needs of the environmental community. It was then time to transform the ECHS from an experimental program to a stable and professionally supported facility. This occurred in the first half of 1998 during which time there were ECHS sites both at NATO headquarters and at IDA. The experimental site was shut down in June 1998, leaving the permanent facility at NATO. Figure 2 indicates the usage level (number of requests for information) for the past two years.

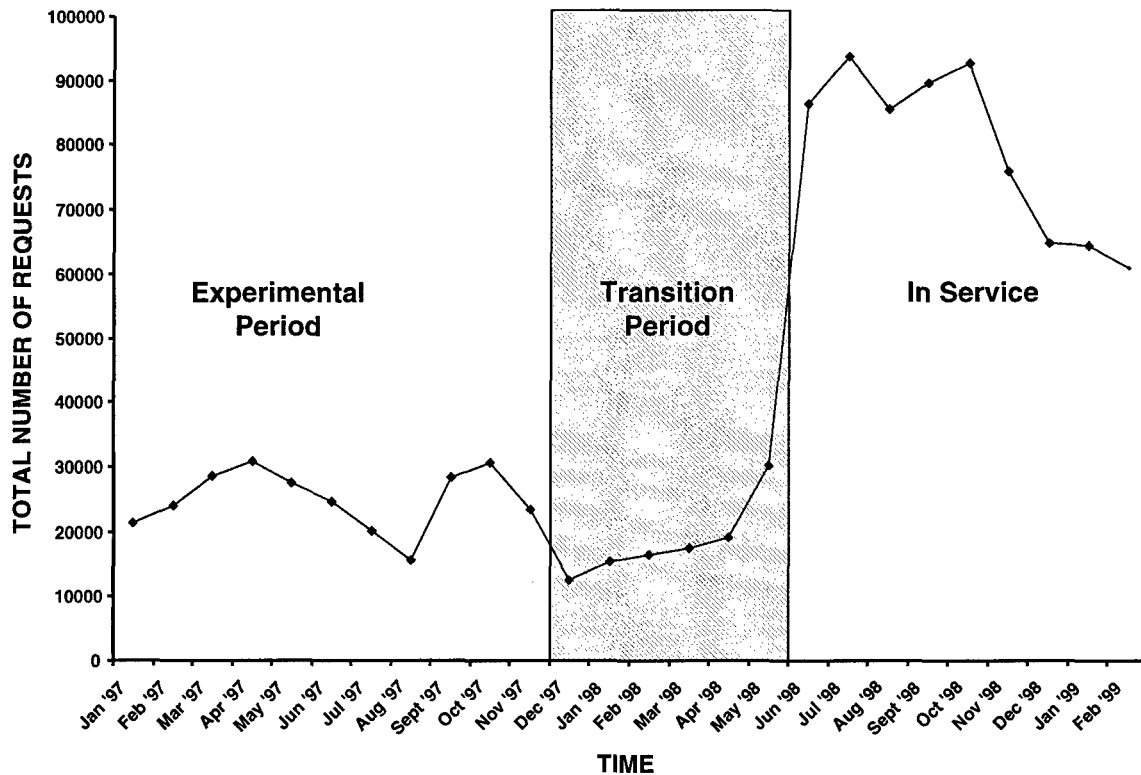


Figure 2. Total Number of Requests

The connectivity of the ECHS, similar to any Internet participant today, is shown as Figure 3. The information typically disseminated in the ECHS includes the following:

- NATO/CCMS overview
- Ongoing and planned CCMS projects
- Pilot study activities, briefings, papers, forums
- Announcements/calendar of events
- Pointers to other environmental Websites and information sources
- Technical reports
- Publications (environment related)
- Funding source information
- Surveys/results

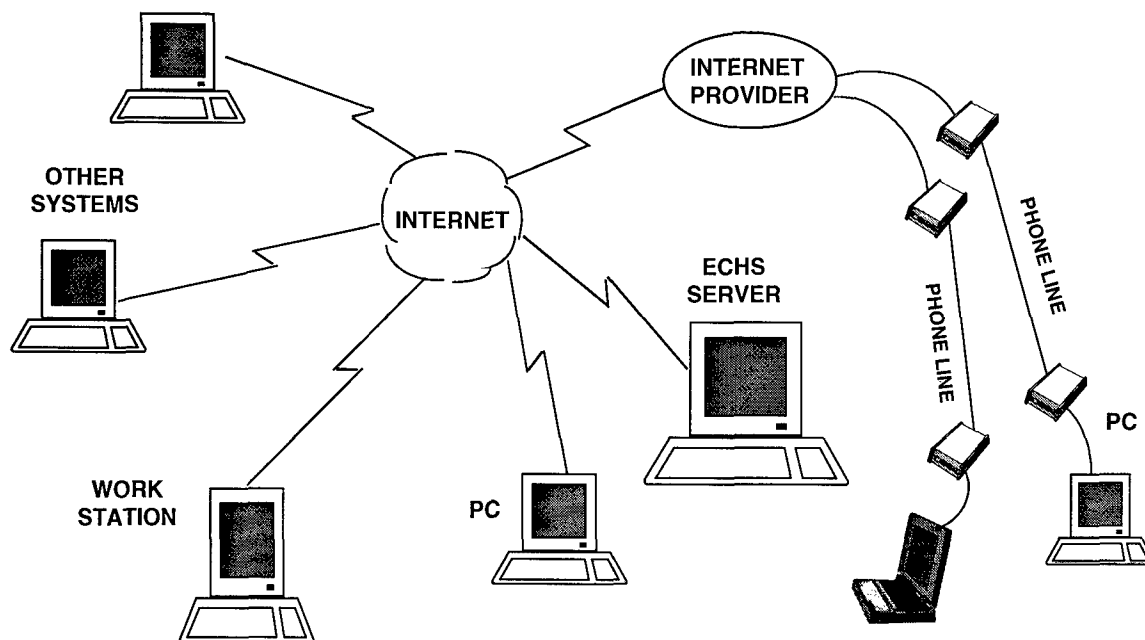


Figure 3. ECHS Connectivity

## POLLUTION PREVENTION INFORMATION

The pollution prevention community would be well advised to take advantage of these new capabilities in information dissemination. The sharing of ideas, plans for action, lessons learned from experimental activities, and measured results of instantiated actions across NATO and PfP nations' pollution prevention communities will certainly leverage the activities of any single nation. The cost of participating in such an information exchange activity is very small and the potential rewards, e.g., learning about the successes of some other nations' effort, can be enormous.

In addition to sharing information amongst a well-defined group of participants, e.g., those represented here in Budapest at this symposium, using the WWW opens access to a very wide range of unclassified and non-proprietary information, including academic research papers, government and international organization reports, and information from the industrial sector. Furthermore, the WWW makes available a large number of "search engines" which makes it possible to search the entire Web for information on any topic, modified by the constraints on the topic of interest. The usual problem here is finding too much information on any given topic because it is quite difficult to delineate the detail of the information desired. This is a topic, a facet of data mining, of continuing major research activity in the information sciences community.

Examples of some of the Websites with large quantities of potentially interesting information on pollution prevention are listed here, each with their universal resource locator (URL):

- U.S. Department of Energy, Office of Environmental Management  
<http://www.em.doe.gov>
- U.S. Environmental Protection Agency  
<http://www.epa.gov>
- Central European Environmental Data Request Facility (CEDAR)  
<http://pan.cedar.univie.ac.at>
- U.S. Department of the Navy Environmental Program  
<http://enviro.navy.mil>
- Pacific Northwest National Laboratory Center for Environmental Security  
<http://www.pnl.gov/ces>
- Canada's Department of National Defense and the Canadian Forces - Environment Division  
<http://www.dnd.ca/admie/dge/dge2e.htm>
- U.S. Navy CFC and Halon Clearinghouse  
<http://www.navyseic.com>
- Global network of Environment & Technology  
<http://www.gnet.org>
- San Diego Bay Project  
<http://www.sdsc.edu/sdbay>
- EnviroLink Environmental Server  
<http://www.envirolink.org>
- Radiation Effects Research Foundation  
<http://www.rerf.or.jp>
- Argus Clearinghouse/Environment  
<http://www.clearinghouse.net/cgi-bin/chadmin/viewcat/Environment?kywd++>
- University of Virginia Environmental Library  
<http://earthsystems.org/Environment.shtml>
- U.S. National Institute of Environmental Health Sciences  
<http://www.niehs.nih.gov/>
- U.S. National Oceanic and Atmospheric Administration (NOAA) Environmental Information Services  
<http://www.esdim.noaa.gov/>
- BOI Technology Holding  
<http://boitech.com/>

Finally, to focus the symposium participants in this direction, the Proceedings of this Symposium will be made available on the NATO CCMS ECHS Website. (Note only those papers that are submitted to the organizers in electronic form will be available in this form.) The URL — the address — of the ECHS is:

**<http://www.nato.int/ccms>**

Once on this homepage, to get to the index page of the Symposium,

- Click on "Pilot Studies"
- This will bring up the Pilot Studies index page
- Click on the Symposium entry, which will be placed at the bottom of the Pilot Studies index page
- This will bring up the Symposium index page

**NATO RTA/CCMS JOINT SYMPOSIUM**  
**on**  
**APPROACHES TO THE IMPLEMENTATION OF ENVIRONMENTAL**  
**POLLUTION PREVENTION TECHNOLOGIES AT MILITARY BASES**

**INFORMATION DISSEMINATION FOR**  
**POLLUTION PREVENTION**

**May 5-7, 1999**

**Dr. Alfred Brenner**

**Institute for Defense Analyses**  
**Alexandria, Virginia**

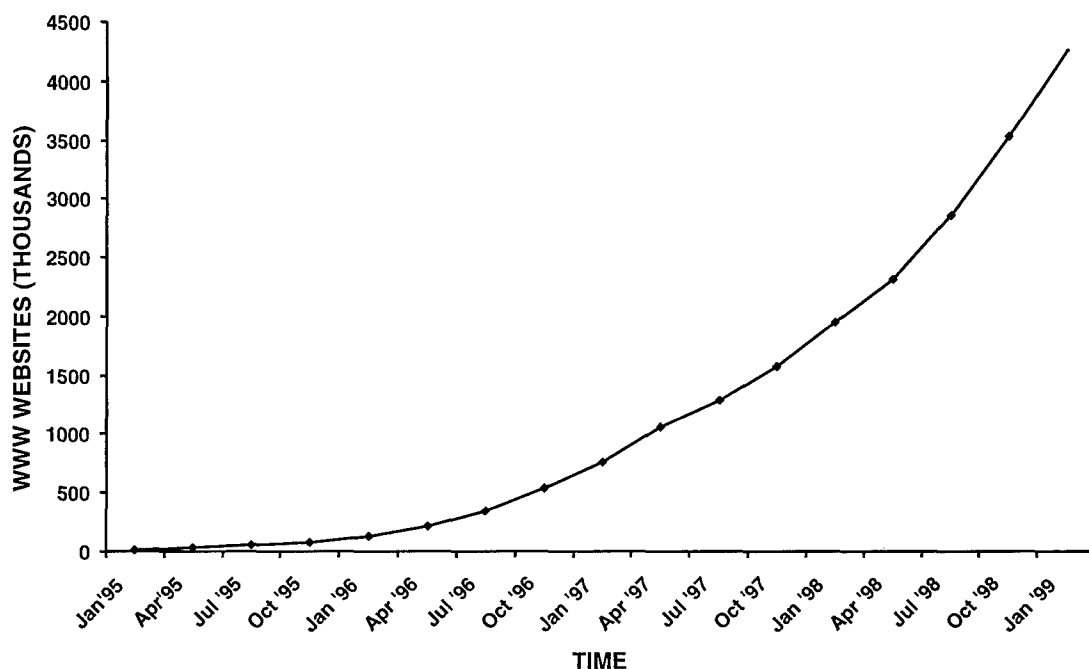
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**THE INFORMATION AGE MILESTONES**

- |                               |      |
|-------------------------------|------|
| • ENIAC                       | 1946 |
| • TRANSISTOR                  | 1947 |
| • SEMICONDUCTOR "CHIP"        | 1959 |
| • ARPANET (→INTERNET)         | 1968 |
| • MICROPROCESSOR (INTEL 4004) | 1970 |
| • APPLE II (→ IBM PC)         | 1978 |
| • WORLD WIDE WEB (WWW)        | 1991 |
| • BROWSER (MOAIC)             | 1993 |

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## WWW WEBSITES (THOUSANDS)



90414ABS1- 3

## ECHS MILESTONES

- CCMS DIRECTORATE INITIATES ENVIRONMENTAL CLEARING HOUSE SYSTEM (ECHS) NOV 94
- EXPERIMENTAL ECHS PROJECT INITIATED--INSTITUTE FOR DEFENSE ANALYSES (IDA) - US MAR 95
  - Decision To Use World Wide Web (WWW) Technology
- PRELIMINARY ECHS OPERATION--ALEXANDRIA, VIRGINIA JUN 95
- FIRST DEMONSTRATION OF ECHS--SWANSEA, UK SEP 95
- ECHS DEMONSTRATION/TRAINING FOR PARTNERSHIP-FOR-PEACE REPRESENTATIVES--NATO HQ, BRUSSELS MAR 96
- RESTRUCTURING ECHS ORGANIZATION OCT-DEC 97
- PARALLEL ECHS SITES AT IDA AND NATO HQ JAN-MAR 98
- TRANSFER OF ALL ECHS ACTIVITY TO NATO HQ MAR 98

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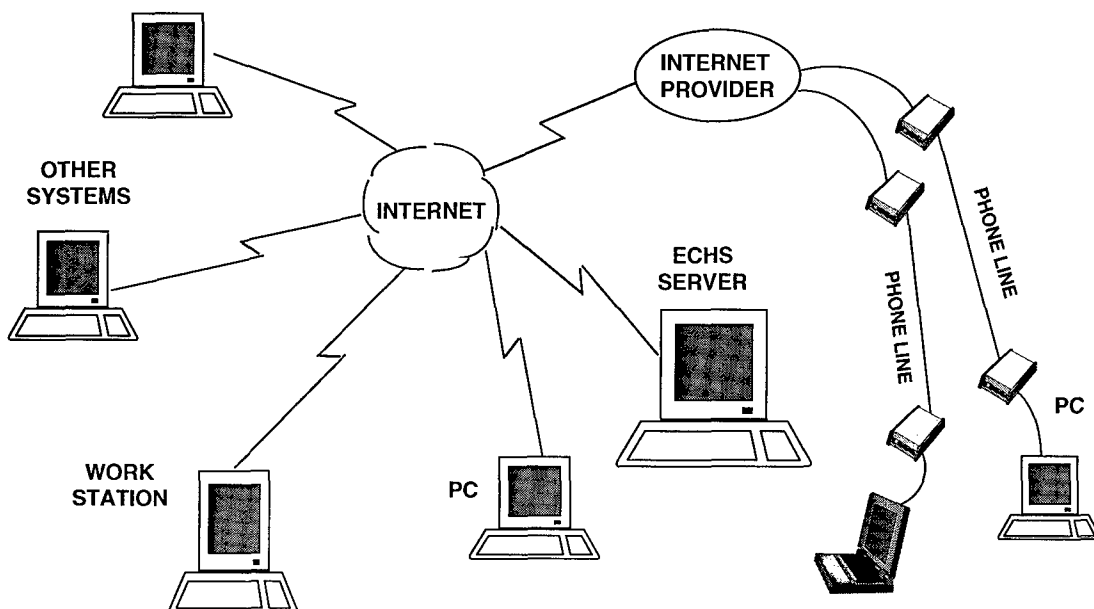


## ECHS CHARACTERISTICS

- **BASED ON THE WORLD WIDE WEB (WWW) TECHNOLOGY**
  - Easy Accessibility With A Variety Of Client Processors
  - Accessible Via Internet
- **SUPPORTED ACTIVITIES**
  - Information Sharing And Transfer
- **RESTRICTIONS**
  - No Classified, Restricted, Or Sensitive Information
  - No Functional (Remote) Computing
- **CONTROL**
  - Information Posting Controlled By Pilot Study Chairs
  - Access To Data Is Normally Unrestricted
  - Restricted Access Imposed Where Necessary--Passwords

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## ECHS CONNECTIVITY



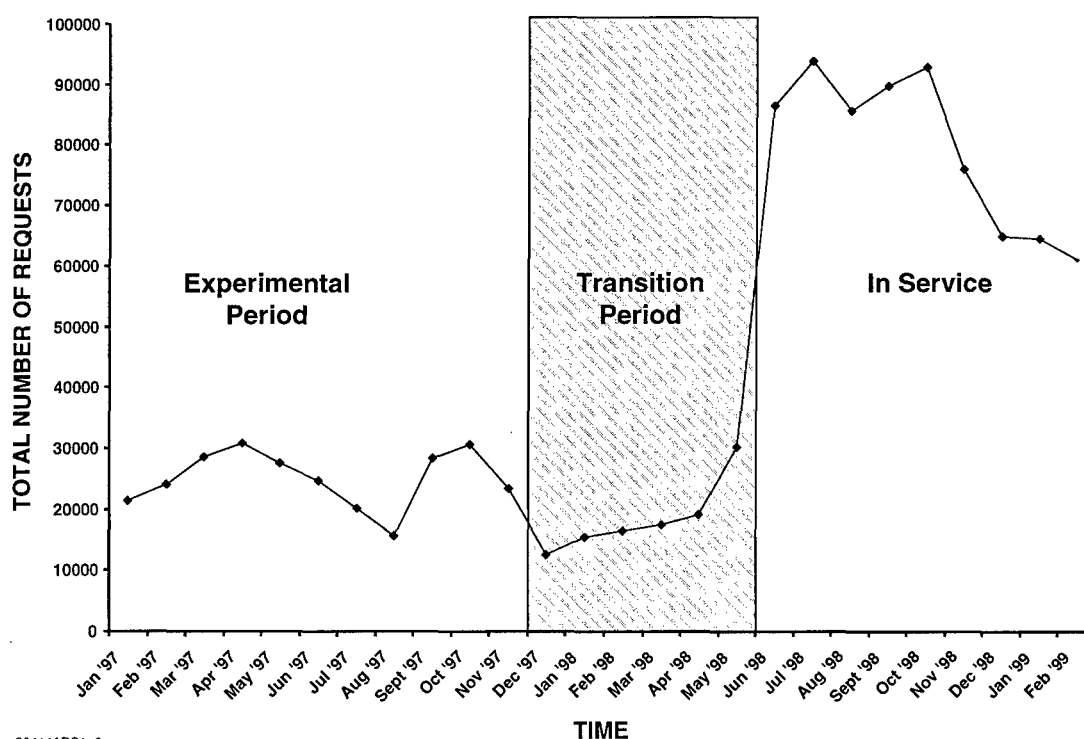
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## ECHS INFORMATION CONTENT

- NATO / CCMS OVERVIEW
- ONGOING AND PLANNED CCMS PROJECTS
- PILOT STUDY ACTIVITIES, BRIEFINGS, PAPERS, FORUMS
- ANNOUNCEMENTS / CALENDAR OF EVENTS
- POINTERS TO OTHER ENVIRONMENTAL WEB SITES AND INFORMATION SOURCES (e.g., NATO, U.S. DOD / DOE / EPA / LIBRARY OF CONGRESS, ACADEMIA)
- TECHNICAL REPORTS
- PUBLICATIONS (ENVIRONMENT RELATED)
- FUNDING SOURCE INFORMATION
- SURVEYS / RESULTS

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## TOTAL NUMBER OF REQUESTS



90414ABS1- 8

## **ORDER OF NATIONAL USE OF ECHS**

- BELGIUM
- ESTONIA
- UNITED STATES
- SWITZERLAND
- AUSTRIA
- GERMANY
- RUSSIA
- UNITED KINGDOM
- FINLAND
- POLAND
- HUNGARY

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## **SYMPOSIUM INFORMATION DISSEMINATION**

- SUBMITTED PAPERS (IN ELECTRONIC FORM) WILL BE PUBLISHED IN THE CCMS ECHS

- THE ECHS URL IS:

**<http://www.nato.int/ccms>**

- Click On: “Pilot Studies”
- This Symposium Will Be Listed At The Bottom Of The Page

- POINT OF CONTACT:

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